

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

## (PCT Article 36 and Rule 70)

Applicant's or agent's file reference NO 7702/WO/PCT		FOR FURTHER ACTION See Form PCT/IPEA416	
International application No. PCT/EP2004/014416		International filing date (day/month/year) 17.12.2004	Priority date (day/month/year) 18.12.2003
International Patent Classification (IPC) or national classification and IPC A61K7/00, A23L1/00, A61K31/352			
Applicant NESTEC S.A.et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <ul style="list-style-type: none"> <li>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:           <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> </li> <li>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ul> <p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>			
Date of submission of the demand  25.06.2005	Date of completion of this report  07.03.2006		
Name and mailing address of the international preliminary examining authority:   European Patent Office - Gitschner Str. 103 D-10958 Berlin Tel: +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized Officer  Alvarez Alvarez, C Telephone No. +49 30 25901- 		

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ON PATENTABILITY**

International application No.  
PCT/EP2004/014416

**Box No. 1 Basis of the report**

- With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
- With regard to the **elements\*** of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

**Description, Pages**

1-15 as originally filed

#### **Claims, Numbers**

1-16 as originally filed

## Drawings, Figures

1-4 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:  
 the description, pages  
 the claims, Nos.  
 the drawings, sheets/figs  
 the sequence listing (*specify*):  
 any table(s) related to sequence listing (*specify*):

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).  
 the description, pages  
 the claims, Nos.  
 the drawings, sheets/figs  
 the sequence listing (*specify*):  
 any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes:	Claims	3, 4
	No:	Claims	1, 2, 5-16
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-16
Industrial applicability (IA)	Yes:	Claims	1-16
	No:	Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

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**Re Item V.**

The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

- D1: DE-A-101 11 045
- D2: EP-A-0 461 827
- D3: US-B-6 365 1991
- D4: US-A1-2003/166583
- D5: EP-A-0 774 249
- D6: DATABASE WPI, AN 2000-024196 & CN-A-1 229 638
- D7: DATABASE WPI, AN 2002-248238 & JP-A-2002 029975
- D8: DATABASE WPI, AN 1997-530127 & JP-A-09 252746
- D9: DATABASE WPI, AN 1988-122604 & JP-A-63 066110

**1. Novelty**

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 2 and 5-16 is not new in the sense of Article 33(2) PCT.

1.1 D1 discloses the use of flavanones in topical cosmetic or dermatological compositions for the prophylaxis or treatment of skin and hair disorders and for improving skin and hair conditions (see D1, claims 1-4, paragraph [0058]).

The subject-matter of independent claims 8 and 9 is therefore not novel.

The additional technical features of claims 10 and 12-16 are also to be found in the disclosure of D1 as follows:

- claim 10: hesperidin, naringin (see D1, claim 11),
- claim 10: eriodictyol-7-glucoside (see D1, claim 11),
- claim 12: cosmetic or pharmaceutical composition for topical application (see D1, paragraphs [0107], [0111]),
- claim 13: flavanone compounds in an amount of from 0.001 to 10 % in weight by weight of the total composition (see D1, paragraph [0099]),
- claims 14-16: flavanones are used as active agents against skin aging, to protect skin

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from UV radiation and from environmental damaging factors, for the treatment of dry skin and pigmentation disorders and against hair loss (see D1, paragraph [0058]).

The subject-matter of claims 10 and 12-16 is thus not novel.

2.2 D2 discloses the use of modified flavonones and their use in the prophylaxis or treatment of hair disorders and for improving hair conditions (see D2, claims 1, 3 and 13; page 14, lines 13-19).

The subject-matter of independent claims 8 and 9 is therefore not novel.

The additional technical features of claims 10, 12, 13, 15 and 16 are also to be found in the disclosure of D2 as follows:

- claim 10: alpha-glycosyl hesperidin and alpha-glycosyl naringin, synthetically produced (see D2, claim 3; page 10, line 51 - page 12, line 12),
- claim 12: topical cosmetic product (see D2, claim 10),
- claim 13: 0.001-10% by weight of flavanone (see D2, claim 7; example 4),
- claims 15 and 16: flavanones are used against hair loss, for imparting a gloss to hair and against inflammation (see D2, example 4; claim 13; page 14, lines 13-19).

The subject-matter of claims 10, 12, 13, 15 and 16 is thus not novel.

2.3 D3 discloses an extract from lemon peel containing flavanones used in a hair growth formula (see D3, claim 1).

The subject-matter of independent claims 8 and 9 is therefore not novel.

The additional technical features of claims 10-13 and 16 are also to be found in the disclosure of D3 (see D3, claim 1; column 2, lines 20-35; column 1, lines 11 and 34). Therefore the subject-matter of claims 10-13 and 16 is not novel.

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2.4 D4 discloses the use of hesperidin, naringin or poncirin as active agents in topical compositions against skin cancer (see D4, claims 1, 10 and 13). The amounts of these compounds used are disclosed in D4, Tables 1 and 2.

The subject-matter of claims 8-10, 12 and 15 is thus not new.

2.5 D5 discloses the use of hesperidin, naringin or eridictyol as active agents in cosmetic compositions against dry skin, aging and wrinkles (see D5, claims 1, 6 and 7; examples 6-8, 10 and 11).

The subject-matter of claims 8-10 and 12-15 is thus not new.

2.6 D6 discloses an antimicrobial shampoo composition for the treatment of inflammation and itching made from pomelo extract and containing naringin and carotin (see D6, abstract).

The subject-matter of claims 8-12 and 14-16 is thus not new.

2.7 D7 discloses food and drink, cosmetic and pharmaceutical compositions comprising eriodictyol-7-rutinoside or lemon flavonoids and vitamin C as free radical scavenger cosmetic or pharmaceutical active agents.

The subject-matter of claims 1, 2, 5, 6-12 and 14 is thus not new.

2.8 D8 discloses a nutrition supplement food for the treatment of baldness containing hesperidin (1%) and vitamin E or catechin.

The subject-matter of claims 1, 2, 6-10, 12, 13 and 16 is thus not new.

2.9 D9 discloses a cosmetic product containing methylhesperidin useful for preventing sunburn and hair decolouration.

The subject-matter of claims 8-10, 12 and 14-16 is thus not new.

The subject-matter of dependent claims 3 and 4 is considered as novel.

**3. Inventive activity**

Starting from D7 as closest prior art and taking into account the disclosure of D9, it seems

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that dependent claims 3, 4 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

**Re Item VIII.**

The compounds referred in claims 1, 8, 9 and 13 as "flavanone derivatives" are not defined. A derivative of a flavanone can even have lost the flavanone structure as a result of the derivatization reaction. The expression "flavanone derivatives" is not acceptable according to the requirements of clarity (Art. 6 PCT).